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Case Report

Outcome of Patients with Combined Renal and Mesenteric Infarction: A Case Report

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SUMMARY

Renal infarction is a rare condition. Its association with mesenteric infarction is aspecific. Embolism is the most common cause, including rheumatoid arthritis. The vital prognosis of this association is often worsened by intestinal damage. Anticoagulation is the basis of medical treatment, combined with either percutaneous revascularisation (intra-arterial thrombolysis, angioplasty-stenting, thrombo-aspiration) or vascular surgery. The speed of the initial treatment determines the subsequent prognosis.

We Report Two Observations: A 40 year old female patient with a history of rheumatoid arthritis, who was admitted to the visceral surgery department for the management of a mesenteric infarction, revealed by an acute intestinal obstruction. The abdominopelvic CT scan identified a mesenteric infarction with occlusion of the distal portion of the superior mesenteric artery and an infarction of the lower pole of the left kidney with gallbladder occlusion. An ileocolostomy was performed due to extensive small bowel necrosis. The patient died at 4 days postoperatively.

The other was a 64 year old man, a chronic smoker, who presented with acute abdominal pain, haematemesis and rectal bleeding, with preservation of his general condition. The abdominopelvic angioscanner showed thrombus in the superior mesenteric artery, parietal thickening of the jejunal intestines and left renal hypodensity. Laparotomy did not reveal any necrotic lesions. Curative heparin therapy was instituted and at 14 days post-operatively the patient was discharged.

Adequate management of cardioembolism ensures the prevention of both renal and mesenteric infarction.

Keywords: Renal infarction; Rheumatoid arthritis; Mesenteric infarction

INTRODUCTION

Renal infarction is a rare, aspecific condition suffering from diagnostic difficulty, with an incidence of 0.003-2% [1-3]. It is related to segmental or complete necrosis of the renal parenchyma. There are many causes (traumatic, renal artery anomaly, cardioembolism, coagulopathy, toxicity) responsible for acute occlusion of one or more branches. Cardio- embolism is the most common cause, including rheumatoid arthritis. Its association with mesenteric infarction is a rare entity. Renal infarction is often revealed as renal colic, sometimes accompanied by haematuria and a febrile episode. These non-specific clinical signs can lead to misdiagnosis and therefore to therapeutic delay and loss of opportunity for the patient.

There is currently no real consensus on the management of this condition. Effective anticoagulation is the basis of medical treatment, the place of thrombolysis is still debated. The rapidity of the initial treatment determines the subsequent prognosis.

We report two cases of mesenteric infarction associated with renal infarction.

MEDICAL OBSERVATION 1

A 40 year old married mother of 2 children, living in Casablanca, was admitted with an acute intestinal obstruction. She had been treated for rheumatoid arthritis for 6 months (on methotrexate 25 mg/week and cortancyl 10 mg/day), with a history of 2 spontaneous miscarriages. She had presented 4 days before her admission with diffuse cramp-like abdominal pain with haematemesis and rectal bleeding; this was followed by a cessation of feces and gas without fever, haematuria or low back pain. On clinical examination, the patient was found to be in good general condition with apyrexia, abdominal meteorism, and a tender abdomen with an empty rectal ampulla to the touch.

The biological work-up noted an inflammatory syndrome (hyperleukocytosis with white blood cells at 33790/mm3, C-reactive protein at 399.3 mg/L), the blood ionogram was normal with good renal function (creatinine level at 9.2 mg/L), as were the haemostatic and immunological work-ups (IgG and IgM anti-cardiolipin antibodies; antibeta2glycoprotein-1 type IgG and IgM antibodies negative, no circulating antibodies, prothrombin time 79%).

The thrombophilia assessment revealed hyperhomocysteinemia at 20.9 micromol/l linked to a homozygous mutation (C677T) the MTHFR gene.

The Cardiac ultrasound did not show any abnormality.

The abdominopelvic CT scan showed total occlusion of the distal portion of the superior mesenteric artery with repermeabilization at its bifurcation, a defect in the elevation of the inferior pole of the left kidney with a non visualizable inferior polar artery, a distension of the small intestines measuring 35 cm with a hydro-aeric level (Figure 1).

Emergency laparotomy revealed extensive small bowel necrosis of approximately 1.40 m from the ileocoecal angle. An ileo-caecal resection involving 1.50 m of small bowel from the ileocoecal angle was performed with a right ileocolostomy and abdominal drainage performed.

Post-operatively, her treatment consisted of dual antibiotic therapy (ceftriaxone 2 g/d and Metronidazole 1.5 g/d), heparin therapy (Enoxaparin sodium 12 Ml/d) and analgesia (tramadol hydrochloride 300 mg/d).

On postoperative day 3, she presented with coldness of both lower limbs with cyanosis; Doppler ultrasound of the lower limbs noted bilateral partial obliteration of the common femoral arteries. At D4, the patient died of pulmonary embolism.

Figure 1: Abdominopelvic CT scan.
A: sagittal section: occlusion of the superior mesenteric artery.
B: Frontal section: inferior polar left renal infarct.

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MEDICAL OBSERVATION 2

Mr 64 years old, married, father of 5 children, living in Casablanca, chronic smoker (80 pack years), who presented with diffuse cramp-like abdominal pain, associated with haematemesis and rectal bleeding, evolving for a fortnight in an apyretic context and conservation of the general state. The clinical examination showed abdominal tenderness and streaks of blood on rectal examination. An inflammatory syndrome was noted (hyperleukocytosis at 20920/mm3 and CRP at 121 mg/l), normal renal function (creatinine at 8.2 mg/l, urea at 0.42 g/l, kalaemia at 4 mEq/l), a correct haemostasis work-up (PT at 89%, aPTT at 23 sec); the immunological work-up was also normal (anti-cardiolipin and anti-beta2glycoprotein-1 antibodies)

The abdominopelvic angioscanner showed the supra- and sub-renal aorta with a non- obstructive atheromatous overload, the presence of endo-luminal material in the superior mesenteric artery and some of its visceral branches, partially obstructing the lumen, parietal thickening of some 32 mm jejunal coves, triangular and peripheral hypodensity in the left kidney (superior polar) and infra-centimetric spleen with a liquid effusion layer in the Douglas: (Figure 2) and subcentimetric splenic hypodensity with a sheet of fluid effusion at the Douglas.

We performed an emergency exploratory laparotomy, which revealed thickening of the jejunal coves 30cm from the duodeno-jejunal angle extending over 50 cm with a layer of ascites, with no signs of necrosis. The procedure consisted solely of removal of the ascites fluid.

Complementary therapy was done: strict digestive rest, vascular filling, omeprazol 80 mg/d, anti-thrombotic (Enoxaparin sodium 12 Ml/D) and parenteral digestive decontamination (ceftriaxone 2 g/D).

The trans-thoracic ultrasound was unremarkable. At D14, the patient was discharged with a satisfactory clinical and scannographic evolution.

The occurrence of renal infarction remains a less frequent event with negligible incidences [1]. The post-mortem incidence of this condition has been estimated at 1.4%, although the incidence in hospitalised patients is approximately 6.1 per million per year [4].

The clinical presentation of acute renal artery embolism is highly variable and often vague. Patients usually complain of flank and/or upper abdominal pain, often associated with nausea and vomiting, sometimes with gross haematuria.

This variable and vague presentation is probably the cause of missed or delayed diagnoses in a significant number of patients. However, several conditions have been associated with acute renal artery obstruction, such as myocardial infarction, advanced cancer, aortic aneurysm and valvular heart disease [5]. In rare cases, it is associated with mesenteric infarction, the clinical picture of which is superseded by that of intestinal obstruction with GI bleeding [6].

Any systemic vasculitis can theoretically be complicated by digestive involvement, a major prognostic factor included in the Five Factor Score [7].

As digestive disease rarely occurs in isolation (13-16% of cases), the diagnosis of vasculitis is particularly relevant when the ischaemic digestive lesions are non-systematic, segmental, multifocal, or even migratory and/or associated with extradigestive signs [8,9].

The combination of ischaemic conditions often occurs in a high cardiovascular risk setting. Nowadays, rheumatoid arthritis is considered to be a cardiovascular risk factor [10,11], due to the intensity of the inflammation with important alterations in the functions of the artery (endothelial function, arterial compliance, systolic pressure index) or its structure (measurement of the intima-media thickness), thus increasing the risk of atheroma production.

However, in the literature, it is clear that chronic smoking is a thombogenic factor, and has been for a long time and he describes the rate of homocysteinemia greater than 15 micromol/l as atherogenic, this explains the occurrence of thombosis in our case. Intestinal involvement is the most common visceral manifestation in rheumatoid arthritis, with abdominal pain being the main sign. The latter may mask low back pain in the case of associated renal ischaemia. The entire digestive tract may be the site of ischaemia, linked to complete occlusion and/or thrombosis of large and/or medium-sized vessels destined for the digestive tract, infarctions or perforations with peritonitis [12,13].

In our observations, renal function was not impaired, probably

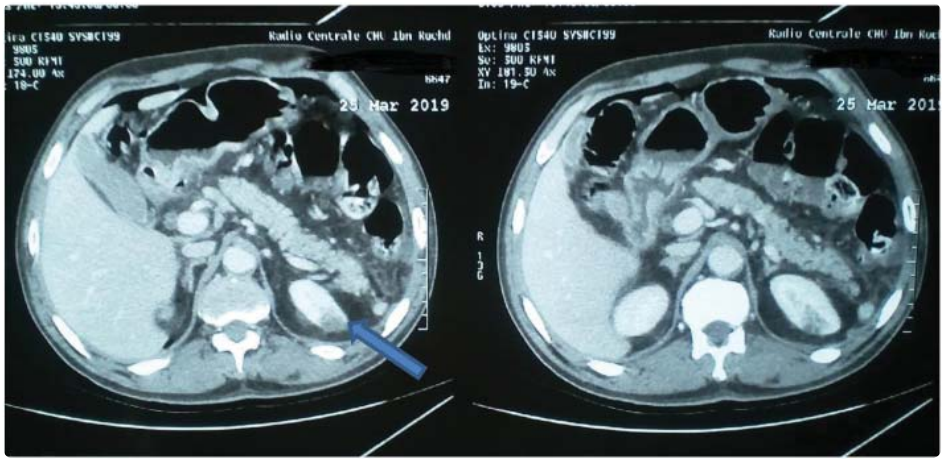

Figure 2: Cross-sectional CT scan: hypodense lesion of the left kidney in the upper pole.

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due to the segmental nature of the renal infarction. Acute renal failure should raise the suspicion of extension of the lesions or iodine contrast nephropathy or a functional component due to the third sector related to intestinal occlusion.

Imaging is key to the diagnosis of arterial occlusion, in particular multi-barrier angioscan with arterial, venous and portal [7,14-16].

Arteriography confirms the diagnosis but is an invasive test and should probably only be used in patients who are candidates for surgery.

Management should be multidisciplinary with several components (medical, surgical and radiological); due to the mesenteric infarction, medical treatment will include strict digestive rest, anti-thrombotics, PPI and oral/enteral antibiotic therapy [17].

Depending on the accessibility of the vascular lesions, percutaneous revascularisation is the radiological treatment (intra-arterial thrombolysis, angioplasty-stenting, thrombo-aspiration), in first intention and in case of failure recourse to vascular surgery is in principle.

Emergency laparotomy should be performed if any of the signs of severity that define late AMI appear, in order to assess bowel viability and resect necrosis [17], otherwise abstinence is the choice.

As the main factor in mortality is delayed diagnosis or diagnosis not made (by insufficient diagnostic means), it should be considered that diagnosis of ischaemia only at the late stage of surgical necrosis has a high risk of mortality [18,19].

CONCLUSION

The increased cardiovascular risk in RA is well documented and patients with RA have twice the risk of developing a cardiovascular event, independent of the usual risk factors. Early diagnosis of cardioembolic diseases and their adequate management ensures the prevention of both renal and mesenteric infarction.

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